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Ritalin Use in Elementary School Children  
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Attention Deficit Hyperactivity Disorder, or ADHD as it is more commonly known, is a behavioral disorder usually displayed in children. In 1999 as many as 9% of boys and 3% of girls in the United States were reported as having the disorder (Sunohara, Malone, Rovet, Humphries, Roberts, & Tayler, 1999). Attention Deficit Hyperactivity Disorder is vaguely defined, so the diagnosis of the disorder is given to a person who displays certain behaviors over a period of time (Neuwirth, 1994). A child with ADHD may exhibit significant problems with attention span, impulse control and hyperactivity compared to that of his or her peers (Bolaños, Barrot, Berton, Wallace-Black, & Nestler, 1991). ADHD is diagnosed according to The Diagnostic and Statistical Manual of Mental Disorders, edition four revised (DSM-IV-TR). This is a manual outlining mental disorders. Each mental disorder has a code number, a description of the disorder, and symptoms that may be displayed by a person who has the disorder. It is used as a guide to aid in the diagnosis and in the treatment of the disorder (American Psychiatric Association, 2000).

The DSM-IV-TR's listing for ADHD indicates three main behaviors that may be prevalent in individuals with ADHD. They are inattentiveness, hyperactivity, and impulsivity (American Psychiatric Association, 2000). Each behavior has signs that are common in individuals with ADHD. The signs that are given must have persisted for at least six months to be considered as ADHD, and the signs must persist to a degree that is detrimental and inconsistent with the child's developmental level. A child does not have to show signs from all three areas to be considered as having ADHD. The child could be displaying behaviors from one area and still have the disorder.

There are three types of ADHD that encase all of the behaviors a child has the disorder could display. The first type is Attention-Deficit/ Hyperactivity Disorder, Predominantly Inattentive Type. The second type is Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type. The third type is Attention-Deficit/Hyperactivity Disorder, Combined Type (American Psychiatric Association, 2000). The DSM-IV-TR has laid out some signs for each of the three types of ADHD. At least six signs have to be present for the child to be determined as having ADHD. Signs of ADHD Predominantly Inattentive are:

- Becoming easily distracted by irrelevant sights and sounds
  - Failing to pay attention to details and making careless mistakes
  - Rarely following instructions carefully
  - Completely losing or forgetting things like toys, or pencils, books, and tools needed for a task
  - Does not seem to listen when spoken to
  - Has difficulty sustaining attention in tasks
  - Has difficulty organizing tasks and activities
  - Avoids, dislikes, or is reluctant to engage in tasks that involve sustained mental effort
  - Forgetful in daily activities
- (American Psychiatric Association, 2000; Neuwirth, 1994).

The second type of ADHD, ADHD, Predominantly Hyperactive-Impulsive, has the following signs:

- Feeling restless
  - Often fidgeting with hands or feet
  - Squirming, running, climbing
  - Leaving a seat in situations where sitting or quiet behavior is expected
  - Blurting out answers before hearing the whole question
  - Having difficulty waiting in line or for a turn
  - Has difficulty playing or engaging in leisure activities quietly
  - Is often "on the go" or often acts as if "driven by a motor"
  - Talks excessively, and interrupts or intrudes on others
- (American Psychiatric Association, 2000; Neuwirth, 1994).

The third type of ADHD is a combination of the two, and symptoms from both of the other types have to be met to be diagnosed with the combined type of ADHD.

The DSM-IV-TR (2000) also states that some of the symptoms that are causing impairment must have been present before the age of seven, some impairment from symptoms must be present in two or more settings, there must be clear evidence of clinically significant impairments in social or academic functioning, and the symptoms are not accounted for by another mental disorder, such as Mood Disorder or Generalized Anxiety Disorder. A mood disorder can involve either a manic or depressive state, or both. A manic state is defined as a period of abnormally and persistently elevated mood. A depressive state is defined as a marked degree of sadness, disappointment, loneliness, hopelessness, self-doubt, and guilt. A mixed state involves both manic and depressive states, one occurring after the other (American Psychiatric Association, 2000). Generalized Anxiety Disorder is characterized by chronic and exaggerated worry and tension, above the level of worry of a person who does not have the disorder. The source of worry can be hard to pinpoint, but may include worrying about money, family, health, or work (American Psychiatric Association, 2000).

Individuals who have been diagnosed with ADHD are usually prescribed stimulant medication to treat ADHD (Bolaños et al., 2003; Brainwave Center, 1996; Cooter, 1998; Dulcan & Benson, 1997; DuPaul & Barkley, 1993; DuPaul, Barkley, & McMurray, 1991; Gray & Kagan, 2000; Havighurst, 1976; Hyman et al., 1998; Kolko, Bukstein, & Barron, 1999; Kollins, MacDonald, & Rush, 2001; Mehl-Madrona, 2000a; Murray, 1987; Neuwirth, 1994; Overtom, Vertabten, Kemner, Kenemans, van Engeland, Buitelaar, van der Molen, van der Guten, Westenbergh, Maes, & Koelega, 2003; Rapport & Moffitt, 2002; Sunohara et al., 1999; Volkow & Insel, 2003; Weathers, 2002). There are many types of medication used to treat ADHD. One of these is Adderall. This drug lasts about six to nine hours (a full school day) and has

a slow onset of action and a sloped drop-off of action, so rebounding from the drug is minimalized. Effects can be felt after only a few doses, but maximum effectiveness is usually achieved after three or four weeks. The drug has a great impact on the child's appetite, so it is essential to watch the child's eating habits and manage his or her diet closely. Another drug used is Dexedrine. This drug is second in use only to Ritalin. The onset of action is a half an hour, and lasts three and a half to four and a half hours. It is usually completely or almost completely absorbed. Some drawbacks of the drug are that it is about twice as potent as Ritalin, taking it with Vitamin C significantly reduces the absorption of the drug, and it results in reduced appetite, though not as significantly as Adderall. One other drug that is prescribed is Cylert. Cylert has an onset of action of about an hour, and must be taken for one to two weeks before improvement occurs. Dosage must also be increased every two to three days over the two-week period. Alcohol should not be used while taking this medication and it may cause insomnia, appetite reduction, and tics (Mehl-Madrona, 2000a; Weathers, 2002).

Of all the various types of stimulant medication used, Methylphenidate (Ritalin) is by far the most widely prescribed. Gray and Kagan (2000) reported that in 1995 about 2.8 million children and adolescents (ages 5-18) received Ritalin for ADHD. In 2000, that number climbed to an estimated 6 million children and adolescents taking the drug for their ADHD (Mackinac Center for Public Policy, 2001). Bolaños et al. (2003) stated that Ritalin accounts for more than 90% of stimulants used to treat ADHD in the United States. Ritalin blocks the reuptake of dopamine, thus increasing the levels of dopamine in the synapse. It increases blood flow to the basal ganglia and decreases flow to frontal and motoric regions. This results in heightened motor response, which is displayed in reduced hyperactivity,

impulsivity, and inattentiveness. (Bolaños et al., 2003; Kollins, MacDonald, & Rush, 2001; Mehl-Madrona, 2000a; Overtom et al., 2003; Sunohara, et al., 1999; & Volkow & Insel, 2003).

Ritalin is very successful at treating the symptoms of ADHD, so it is prescribed quite frequently. Ritalin has a rapid onset of action, at about twenty to thirty minutes, so it reduces symptoms quickly (Mehl-Madrona, 2000a). It does a great job of reducing the symptoms found in individuals with ADHD, but it is a drug, and thus along with all the positives of the drug come the negatives. One of these negatives is that the process of blocking the reuptake of dopamine makes Ritalin similar in cellular and behavioral actions to that of cocaine and amphetamines. Many researchers have concerns over this fact, mainly because the long-term effects of Ritalin have not been reported, and so the potential for abuse is not yet known (Bolaños et al., 2003; DuPaul, Barkley & McMurray, 1991; Kollins, MacDonald, & Rush, 2001; Overtom et al., 2003; Sunohara, et al., 1999; & Volkow & Insel, 2003). The fact that long-term effects are unknown is true for most drugs, but being that this medication is given to children makes it an utmost concern. Volkow and Insel (2003) and Murray (1987) state that adverse neural and behavioral consequences of long-term stimulant use in children are not yet known. They also state that the use of stimulants such as Ritalin may result in changes in cognition and behavior as the child matures, again, those changes of which are not yet known. Even with so little known about the long term potential consequences of Ritalin use, it is still prescribed as though it has been proven safe time and time again.

Another reason careful consideration should go into prescribing Ritalin to children is because the definition and symptoms of ADHD are so vague and varied. The three behaviors and their corresponding signs are not the direct definition of

ADHD; they are behaviors that have been common in many people who have been diagnosed with ADHD, and thus are used to assess ADHD in others. The diagnosis of ADHD is often reliant on a brief clinical evaluation and behavioral descriptions by parents and teachers instead of a specific diagnostic test, comprehensive evaluation or formative assessments. This makes diagnosis fairly subjective even though physicians and pediatricians are following the guidelines set forth by the DSM-IV-TR (Hyman, Wojtowicz, Lee, Haffner, Fiorello, Storlazzi, & Rosenfeld, 1998; Paule, Rowland, Ferguson, Chelonis, Tannock, Swanson, & Castellanos, 2000). If a set number of signs are present in the child, Ritalin is usually prescribed.

Many physicians have increased their usage of Ritalin because they see how well it works. They believe that since the children are having a positive reaction to the Ritalin, it must be working and thus the child should stay on it. For example, if the child improves because of maturation, the improvement may be masked by the drug use. This leads to children being on Ritalin who do not need to be on it (Hyman et al., 1998). Ritalin and other stimulants have been shown to reduce the ADHD target behaviors of inattentiveness, hyperactivity and impulsivity for children without ADHD as well, in which case these children appeared to respond positively to the drug, even though they did not need it because their behavior could be managed through other methods (Gray and Kagan, 2000). These children are ingesting chemicals that are unnecessary, simply because on the outside they seem to be reducing the ADHD target behaviors of inattentiveness, hyperactivity and impulsivity. The reduced behavioral problems of the children in the classroom would be beneficial to the teacher, but that doesn't mean we should be putting our children on Ritalin. Medicating a child for problems he or she doesn't even have would be an absurd thing to ask of parents, but this is exactly what is happening when children

are placed on Ritalin who don't need it. Most outbursts are generally children being children, in which case reprimands and consequences from the teacher should be enough to take care of those outbursts, and there would be no need for medication. The idea that this child must have ADHD because Ritalin is having a positive effect on him or her very well could be incorrect, but there is really no way to know this. The same may be said for a child who responds negatively to Ritalin. Since Ritalin is not having the desired effect on this child, then by default this child must not have ADHD. Again, this reasoning could be incorrect, but there is really no way to know.

Along these same lines is the concern of what dosage is best for each child. Hyman et al. (1998), DuPaul and Barkley (1993), and Cooter (1998) all reported that one level of Ritalin might improve behavior while negatively affecting cognitive performance and classroom learning. Although the negative behaviors displayed by the child are diminished, it may not be the case that learning is enhanced (Murray, 1987; Wulburt & Dries, 1977). They also state that there is no specific improvement scale or change of rating score that is used to recommend what dosage should be given or if a prescription should be given at all (Hyman et al., 1998). It is likely that physicians are basing dosage changes solely on the subjective assessments made by parents instead of doing a clinical evaluation, thus leading to a greater chance of making an error (DuPaul & Barkley, 1993). It is a very hard task to decide the dosage of Ritalin each child should take, especially since there is no set rule and each child may respond differently to a certain dosage. Two children who share similar characteristics are very likely to show to very different responses to the drug, thus each dosage would have to be set on an individual basis (DuPaul & Barkley, 1993; Murray, 1987).



Once the child is placed on Ritalin, he or she may show reduced hyperactivity, inattentiveness and impulsivity, but parents and teachers may also notice adverse effects of the drug. Ritalin only lasts for about two to four hours and there is a significant rebound effect when the drug wears off, meaning the child may display heightened levels of excitability, activity, irritability, inattentiveness, and impulsivity due to the absence of Ritalin in the child's system (Duncan & Benson, 1997; Mehl-Madrona, 2000a). The child will have to take the drug a few times a day, and then when the drug wears off the child experiences higher levels of agitation or anxiety than if the child would not have taken the drug at all or when the drug was still in the child's system. Also, there is a growing list of side effects that have been found in individuals who are on Ritalin. This list includes cardiovascular effects (elevated heart rate and increased blood pressure), weight loss, slowed growth rate, insomnia, appetite reduction, increased irritability and depression (DuPaul, Barkley, & McMurray, 1991; Cooter, 1998; National Institute of Mental Health, 2003; Rapport & Moffitt, 2002). Ritalin may treat the behavioral problems found in the child, but it has also been found to create a number of problems in children as well. By taking Ritalin, the child is potentially compromising his or her immediate and future health. As with most drugs, the extent of side effects along with the severity of the side effects is not fully known. This shows yet another reason why more research has to be done on the drug itself and why other options must be explored. Parents need to weigh the pros and cons of the drug before placing their children on Ritalin. A comprehensive evaluation must also be performed before Ritalin is settled on as the only viable choice for the child.

It is very important that the child be thoroughly evaluated by the proper professionals, such as a psychologist or psychiatrist, before Ritalin is prescribed.

Medical, psychological, and educational professionals should all be consulted before placing a child on Ritalin. An accurate evaluation will only be obtained by involving all of these professionals (Cooter, 1998; Dulcan & Benson, 1997)). Very rarely is a psychologist referred to when a child is being evaluated for ADHD (Cooter, 1998; Hyman et al., 1998), which means most physicians are going off of one brief evaluation, which usually takes place in their office and not where the child exhibits most of the target behavior. It seems unlikely that a proper diagnosis can be made in such a place that may be novel to the child and where the child is not comfortable, with someone the child does not know very well if at all.

The child's school psychologist would be in the prime spot to do a thorough evaluation, as well as carry out the routine observations that would be necessary to decide if the child should be placed on Ritalin or not. The psychologist can observe the child in the setting where the greatest problems with ADHD-type behavior would occur, the school. DuPaul, Barkley, and McMurray (1991) have set out a few factors for school psychologists to consider when deciding to place a child on Ritalin. These factors are:

- \*Severity of the child's ADHD symptoms and disruptive behavior
- \*Prior use of other treatments
- \*Presence of anxiety disorder symptoms
- \*Parental attitude toward use of medication
- \*Adequacy of adult supervision
- \*The child's attitude toward medication

Only after all of these factors are considered and a thorough evaluation is conducted should the idea of Ritalin be brought up as a valid form of treatment.

Children with ADHD rarely have pure ADHD; the majority usually has some other form of behavioral disorder that goes along with the ADHD, which is termed co-morbidity (Dulcan & Benson, 1997; National Institute of Mental Health, 2003;

Rappaport and Moffitt, 2002). This is another reason why a full clinical evaluation should be used. If a child has a reading disability or some other form of learning disability, that child is probably going to show signs of ADHD, simply because he or she is not getting the subject matter and does not know how else to show his or her frustration. It may also be the case that the diagnosis of Attention Deficit Hyperactivity Disorder is not correct at all. A child who has Generalized Anxiety Disorder, Oppositional Defiant Disorder, or Conduct Disorder may also be acting similar to a child who has ADHD, in which case a misdiagnosis could occur (Dulcan & Benson, 1997; National Institute of Mental Health, 2003; Paule et al, 2000).

These children have to be assessed and helped in the ways that will most benefit them, which is most likely going to be the help of a psychologist, not a drug. In all actuality, any child could show a number of signs of ADHD without actually having the disorder. The child could be living in a dysfunctional family or have some other underlying condition that has not already been listed (depression or an adverse response to medication) that facilitates the inattentiveness, hyperactivity, and impulsivity (DuPaul, Barkley & McMurray, 1991). It is argued that children are being placed on medication to control their disruptive behavior, without actually knowing if the child really has ADHD (Mehl-Madrona, 2000a). Again, it is very important that a psychologist or psychiatrist professionally evaluate these children before being put on medication such as Ritalin. Ritalin may reduce the behaviors and symptoms of ADHD, but for many of these children it only masks the true problem that will never be dealt with unless the child is seen by someone who can get to the bottom of the real issue.

School psychologists are a great tool for parents to utilize because they are able to do an extensive evaluation if a child is showing problematic behavior. They

are able to talk to the child in a familiar setting and get to the bottom of the behavioral problem. It may be found that the child does not have ADHD, but is in need of further academic help, is having problems at home, or has a form of conduct disorder. If this is the case, drugs are not needed. Behavior modification should be used as a first approach to children displaying ADHD symptoms (Havighurst, 1976). Behavior modification has been shown to improve the classroom behavior of ADHD children (Pelham, Cason, Sams, Vallano, Dixon, & Hoza, 1993). It is very effective in modifying negative behavior into something positive and it does not require the use of any stimulants such as Ritalin. It is safe and healthy for the child and has no side effects (Bolaños et al., 2003). Behavioral programs can also be used to control many behaviors, ranging from talking out and aggression to out of seat behavior, improved positive behavior and increased contribution to class discussion (Kolko et al., 1999; Wulbert and Dries, 1977).

Behavior modification is not a new concept, and there are many ways to go about implementing a modification program for children with ADHD. Some main points to keep in mind are that rules and expectations should be clearly defined so that the child knows exactly what is expected of him or her. Also, teachers should not isolate the child, but keep them front and center where the teacher can keep his or her attention. Teachers need to keep in mind that a lot of low-key or lecture work is also not conducive to the child with ADHD, and thus a mix of low-key work and hands-on activities need to be given to the child to keep him or her attentive and on task. Directions need to be clearly explained and defined, and patiently repeated if need be. Teachers need to make sure the directions are understood before moving on to the task.

As for the tasks themselves, the children should write them down accurately to make sure they know exactly what they are supposed to do. The tasks should also be broken down into smaller tasks so the child does not feel burdened by one large task that could take him or her awhile to accomplish or would be easily distracted from. Teachers and parents alike need to keep in mind that individual needs have to be considered at all times, because what works for one child may not work for another, and all children have different needs that have to be addressed (Duncan & Benson, 1997; Mehl-Madrona, 2000b, National Institute of Mental Health, 2003). Also, all children do not have the same type of ADHD, in which case each child's diagnosis may be different from the next which means having to meet different needs for each child (Duncan & Benson, 1997).

There are many types of behavior programs that could be put to use. One type of behavioral modification program is self-monitoring. With this, the teacher/parent and the child agree on one behavior that is displayed and should be changed. Both teachers and parents have to work together to maximize the effectiveness of whatever program is implemented (Duncan & Benson, 1997). The behavior that is agreed upon needs to be explicitly explained so the child knows exactly when he or she is exhibiting the specific behavior. An example of this is given by Mehl-Madrona (2000b). The child's problem behavior is sarcastic remarks, which he makes on the average of once every twenty minutes. To have the child be more successful at managing the remarks, set the time interval to fifteen minutes instead of twenty. During the fifteen minutes, every time a sarcastic remark is made, the child notes that. As the child progresses and improves, the interval keeps getting longer and longer so the child can learn to manage the problem behavior of sarcastic remarks for long periods of time, even up to a whole school day.

The behavioral program of a token reward system is also a type of behavior modification that can help children with ADHD. The parents or teacher identify a behavior that they want the child to display more often (a desirable behavior), and then explicitly define what is expected of them to earn the reward. The child receives the reward when the desired behavior is displayed. The reward has to be something the child wants and will work towards, and the behavior has to be something within the child's means. The parents need to make an effort to observe their child doing the desired behavior so that rewarding the child occurs enough for the child to eventually change the undesired behavior to an acceptable one (Barkley, Edwards, Laneri, Fletcher, & Metevia, 2001; National Institute of Mental Health, 2003).

Another type of behavior modification is called Positive Behavioral Support (Mehl-Madrona, 2000b). This type of behavioral program focuses on the "why" of the problem, and involves parents and teachers observing the child in numerous settings to see what function the behavior is serving for the child. Positive Behavioral Support focuses on changing the environment and the child's responses in that environment to enhance the child's feeling of accomplishment and success. It also aims to teach important skills that reduce the function of the behavior so the child does not exhibit it any more. There are some key steps that need to be implemented in Positive Behavioral Support to ensure its effectiveness. First is that the plan must fit with the child. There is no one general plan that works for all children. It must be unique and helpful to each individual child. Second is that no one person can carry this out alone. Many people who are involved with the child need to work together to make it work. Teachers, parents, and the school's psychologist all have to work together to observe the child and make sure the plan is

working and being carried out correctly. All those involved with the child need to have the same set of rules and guidelines for the program so that it is carried out consistently wherever the child may be. The focus of the program is to enhance the child's life and to make the problem behavior less desirable and useful to the child (Mehl-Madrona, 2000b).

Another concept that can be used for children with ADHD is movement therapies. These involve keeping the child active with tasks that are relevant to the subjects being taught, but that offer more hands-on learning for the children to keep them active and to keep them focused. There are many different plans that can be followed, from sensory therapy to motor integration therapy. All of these rely on the child's senses and a restructuring of activities to allow for movement and sensory stimulation (Mehl-Madrona, 2000b).

One other program is titled Cognitive Behavior Modification (Robinson et al., 1999). This program uses techniques that provide individuals with the necessary tools to control their own behavior. These tools address problems ranging from self-control and academic problems to interpersonal problems the individual might be experiencing. Cognitive Behavior Modification is used to modify cognitions and thought processes that affect overt behavior. An example of this technique is given by Robinson, Smith, Miller, and Brownell (1999). It starts with a task such as coloring figures or copying line patterns. The teacher or parent would have the child say the instructions aloud, and then prompt the child to perform the same tasks while fading the self-statements until they were not talking aloud anymore. The goal of this task is to move the child from speaking the instructions aloud to saying them in his or her head. This task improves the child's comprehension and attention of the task and reduces off-task behavior.

One last idea that parents and teachers need to keep in mind is that children with ADHD will need a lot of emotional and social support. The child may not have a lot of friends because of the problematic behavior displayed from the ADHD, and thus he or she may lack the positive experiences and successes that his or her peers receive. Parents and teachers need to focus on the child's strengths and abilities and let the child know when they are doing a good job instead of focusing mainly on the disruptive behaviors displayed. The child with ADHD has quite a lot to offer and his or her creativity and abilities can be an asset to both the child and the classroom. Participation in groups is also an encouragement to children with ADHD. Getting the child to participate with his or her peers encourages friendships between the child and his or her peers as well as boosting the esteem of the child. It helps the child feel more involved with the other children and lets the child see that he or she is not different from the other children (Mehl-Madrona, 2000b; National Institute of Mental Health, 2003). Behavior modification programs also enable the child to control his or her behavior. This control makes them feel like they are accomplishing something, which can boost self-esteem and push the child to keep up the behavioral program (Robinson et al., 1999).

Even if the child is found to have ADHD and is placed on medications such as Ritalin, a behavior modification program should be put in place. Medications do not teach the child how to compensate for his or her disorder; thus skill-building strategies such as a behavior modification program should be used (DuPaul, Barkley, & McMurray, 1991; Weathers, 2002). Behavior Modification programs have been found to teach self-regulatory skills and minimize impairment, which are areas that medication cannot help (Kolko et al., 1999). It has also been found that if medication is paired with a behavior program, a lower dosage of medication can



usually be prescribed (National Institute of Mental Health, 2003). A child is not "cured" of ADHD simply because they are now taking drugs to help treat the symptoms. He or she still has to be observed and helped, especially if the child is found to have another disorder, which would have to be addressed and managed as well.

Ritalin is helpful to many children, but it should still be prescribed with caution. The long-term effects of Ritalin are yet unknown, but a list of side effects has been well established. Parents and teachers need to be fully aware of these side effects as well as the long-term effects before deciding to place a child on Ritalin. To aid in deciding if Ritalin is right for a child, a full clinical evaluation should be carried out. This can be done by the child's school psychologist who can observe and evaluate the child over long periods of time in a setting that the child is comfortable in and is there for a large part of his or her day. The school psychologist is in a great position to do the evaluation because they are available to observe the child on a daily basis. A full clinical evaluation can give all those involved with the child a better picture of what the child's needs really are.

It could also bring into light a problem the teachers or parents didn't consider, such as another disorder. It is quite common for another disorder to be present with the ADHD or for children to have a disorder that has similar outward symptoms to that of ADHD, such as conduct disorders, anxiety disorders, or a learning disability. The child's home life could also be leading to the disruptive behavior similar to that of ADHD. The possibility of finding the real root of the child's problems is heightened when a full evaluation is carried out. This also will lead to the proper form of treatment being given to the child.

Another valid option to consider before going to Ritalin is that of behavior modification. There are many types of behavioral modification programs that can be used for children. They are safe, effective, and have no side effects like drugs do. They also give the child a great sense of pride and accomplishment at conquering the problematic behavior, and can be used in any situation. They are unique to each child, and thus the likelihood of success is greater because the program is made specifically for the child. Even if drugs are prescribed behavioral programs should still be used. Drugs alone cannot help the child deal with all of the problems brought on by ADHD. Implementing a program that teaches coping skills and helps the child understand what's going on will also greatly benefit the child. The main thing to remember is that the child's needs must be put first and that deciding that Ritalin is best for the child before looking fully into the problem will only hurt the child more in the end. It could be that the Ritalin is masking the true problem, in which case the behavioral problems will be diminished while the real problem still remains with the child. Thus the child will not be helped for the real problem, which will only get worse as time progresses and the problem goes untreated.

## CASE ILLUSTRATION

Davy is a child in any third grade room. He is eight years old, four feet six inches tall, weighs 80 pounds, has sandy blond hair that is cut fairly short, and has blue eyes. Davy had a tendency to act out and disrupt class. He didn't pay attention in class, was often forgetful and made mistakes in his schoolwork, had difficulty concentrating, was very fidgety and felt the need to leave his seat when he should have been sitting attentively and listening to the teacher. His teacher didn't know what to do with him anymore, and thus made the suggestion to his parents that he may have Attention Deficit-Hyperactivity Disorder. His parents were a bit confused because they didn't really know what ADHD was, but they had noticed that Davy had become more inattentive and didn't seem to pay attention when asked to do something. They figured it was just Davy being a child, but maybe it was something more. They decided to take him to the family physician as soon as they could.

The following day Davy's parents took him to see the family doctor. Davy really didn't know what was going on or why he was going to see the doctor. His parents said it was nothing big, that they just wanted him to get a check-up to make sure he was growing up all right. The doctor first did a physical check-up and found everything to be going fine for Davy. The doctor next asked Davy some questions, such as did he like school, did he have any problems with school, did he have any problems with the teacher or fellow classmates, and was Davy noticing problems that didn't seem to be there before. Davy said he did like school, but that he couldn't seem to listen to the teacher, even when he wanted to. He said he didn't like sitting for such a long time and that sometimes he got out of his seat or played around with things in his desk because he felt like he needed to do something. Davy also said that his teacher was nice but that he didn't think she liked him because she was

always telling him to sit down or pay attention or do what the other children are doing, even though he was trying to. Davy said he didn't have many friends because the other kids in class didn't like when he got in trouble or couldn't listen to what the teacher was saying.

The doctor thanked Davy and told him that he was going to talk to his parents for a little bit. When Davy's parent's got into the room, the doctor said that Davy's physical check-up went fine, but that he had some concerns about some of Davy's answers to the questions he asked. The doctor went over the questions he asked and Davy's answers. He then asked his parents if they could describe Davy's home life a little bit. His mother said that he was very active, always playing and jumping even when she told him to stop. She said that she sometimes had to ask him to do things quite a few times before he seemed to listen to her, while other times she would just give up asking and do it herself because he wasn't paying attention. Davy's dad said that Davy was also having a hard time with his homework. He had trouble getting it all done at once; he always seemed to be taking breaks or would just sit there and play with his pencil and such. It was like Davy couldn't concentrate at all on what he had to do, something else was always taking his attention away from his work. When he would finish his homework, it would be full of mistakes that he shouldn't have made.

The doctor told Davy's parents that it did in fact sound like Davy had ADHD and that he would give them a brochure on both the disorder itself as well as the ways to treat the symptoms Davy was displaying in school and at home. Davy's parent's read through the brochure and all the different types of treatment. They were a little worried that what seemed to work best for most people was a drug called Ritalin. Davy was only eight years old; should they be putting him on

medication at such an early age? What could be the potential drawbacks of placing him on this drug at eight years old? Were there any options they could look into before fully deciding on this path? There had to be someone else they could talk to who would be more knowledgeable about this disorder and could give them more ideas of what to do. Davy's parents decided to talk to the school psychologist at his school.

The school psychologist was more than happy to meet with Davy and his parents. He told them that Ritalin was helpful for most children placed on it, even though there was no way to determine if Davy would benefit or not. He also told them that behavior modification was another route they could take that did not involve drugs of any sort and had no side effects. Davy's parents were pleased to hear this and asked the school psychologist if he could start working with their son right away. The school psychologist told them that he would be happy to help, but that before any treatment measures were taken he wanted to observe Davy in the classroom for a week and do a full clinical evaluation to make sure that ADHD was truly the disorder Davy had.

The school psychologist watched Davy for a week and upon the one-week completion of the observation and full evaluation, he called in Davy's parents to tell them what he found. The school psychologist told Davy's parents that although Davy was showing some symptoms of ADHD, this was not what he had. The symptoms he was displaying fell more closely under a disorder called Generalized Anxiety Disorder. The symptoms of this disorder are:

- Restlessness or feeling keyed up or on edge,
- Being easily fatigued,
- Difficulty in concentrating or mind going blank,
- Irritability,
- Muscle tension, and

- Sleep disturbance (difficulty falling or staying asleep or restless unsatisfying sleep)  
(American Psychiatric Association, 2000).

The school psychologist stated that although Davy displayed some of the symptoms of ADHD, he did not display enough of them. A person has to display at least six symptoms from the ADHD list to be considered as having the disorder, and the symptoms Davy was displaying were the symptoms that are shared by Generalized Anxiety Disorder. When the school psychologist met with Davy and asked him about school, Davy again said that he had a hard time paying attention. The school psychologist asked him if he was too busy thinking about something else to think about his schoolwork, and Davy said he was always thinking about his family and wondering if they were ok or he was thinking about school but it was more like was he doing well, did the teacher and other children like him, and what would happen if he didn't get his homework done. The school psychologist then asked Davy how he was sleeping, and Davy said he had a hard time falling asleep because he was always thinking about stuff, and that he would wake up one or two times a night because he was worried that something bad was going to happen. It was after this meeting that the school psychologist confirmed that it was not ADHD, but Generalized Anxiety Disorder.

The school psychologist then told Davy's parents of the options they could take concerning the Generalized Anxiety Disorder. He said that putting Davy on Ritalin would have helped with the outward symptoms Davy was exhibiting like acting out, getting out of his seat, and not paying attention to the teacher, but that it would not have dealt with the anxiety and worry that Davy was feeling. This would have stayed with him all his life if he had been put on Ritalin. The drug would have masked the real problem by reducing the problem behaviors that Davy was

displaying. Now that the real disorder had been identified, the necessary and correct steps could be taken to alleviate and treat the disorder.

This illustration is completely fictional, but it is something that could occur. It shows how important it is to do a full observation and evaluation of the child to get to the real problem. There are a few disorders that share symptoms with ADHD, but if the child is not observed by a professional who is highly knowledgeable of the various disorders, an incorrect diagnosis could be made and the child could be treated for a disorder that he or she doesn't have. Ritalin will do a good job of reducing the problem behaviors seen in the child by teachers and parents, but it will be masking the true problem. It can be compared to giving your child aspirin when he or she doesn't have a headache or a fever. Parents don't give medication to their children if they don't need it, and the same can be said of Ritalin. It is imperative to fully evaluate the child in settings that are familiar to the child to make sure that a correct diagnosis is made. Masking the true problem will be of no benefit, especially to the child who will not have gotten the help he or she really needed for a problem that will stay with him or her and may cause even more problems for the child as he or she gets older.

## GLOSSARY

**Attention Deficit Hyperactivity Disorder:** A developmental disorder most often displayed in children, and affecting 3-7% of the child population in the U.S. It consists of a developmentally inappropriate degree of impulsive-hyperactive behavior or inattention compared to the children's peers, and impairs school, home, and social functioning to a detrimental degree (Barkley, Edwards, Laneri, Fletcher, & Metevia, 2001).

**Basal Ganglia:** A large collection of nuclei that modify movement and produce dopamine. The output from this region is inhibitory, which means that it stops impulses from moving information on to other neurons. The function of the basal ganglia is to inhibit all movements except for those that are needed to carry out the desired movement (Bolaños et al., 2003; Kollins, MacDonald, & Rush, 2001; Overtom et al., 2003; Volkow & Insel, 2003).

**Behavior Modification:** Changing a person's behavior from something that is undesirable and unwanted to a behavior that is accepted and commendable. There are a variety of behavior modification programs one can choose from, all of which have specific guidelines and uses. One major point to keep in mind is that each behavior modification program needs to be made specifically for the child and his or her individual needs must be considered at all times (Mehl-Madrona, 2000b).

**Diagnostic and Statistical Manual of Mental Disorders Fourth Edition, Text Revised (DSM-IV-TR), The:** A listing of all the mental disorders that one can be diagnosed with. The DSM-IV-TR outlines each mental disorder, as well as gives a list of symptoms that are displayed by an individual who has the disorder. It is used as a guide to help diagnose individuals with a certain disorder and to aid in treatment of the disorder. It also includes a code number for each disorder for billing and insurance purposes (American Psychiatric Association, 2000).

**Dopamine:** A monoamine neurotransmitter (see Synapse-a neurotransmitter that contains one amino group) found in the brain that is essential for normal movement and functioning of the Central Nervous System. In ADHD, lower levels of dopamine in the synapse have been found to cause the three target behaviors of ADHD (Bolaños et al., 2003; Kollins, MacDonald, & Rush, 2001; Overtom et al., 2003; Volkow & Insel, 2003).

**Fading:** To gradually lessen; in the example of talking aloud, it means to start out at regular speaking levels then get quieter and quieter until the children are only mouthing the words, and then only saying them in their heads (Robinson et al., 1999).

**Formative Assessment:** A full assessment of a child to understand the extent and significance of what is going on in the child's life and what the child is experiencing. The information gained from the assessment is used to aid in diagnosis if one is needed (Cooter, 1998).



**Generalized Anxiety Disorder:** Anxiety that is far more than the normal anxiety people experience. It is chronic and exaggerated worry and tension about anything including work, school, family, money, and health. Nothing seems to provoke the anxiety in a person, and individuals with this disorder always seem to be anticipating the worst (American Psychiatric Association, 2000).

**Mood Disorder:** The general categorical name for a group of disorders in the DSM-IV-TR. There are five specific disorders under this one heading. They include:

- \*Bipolar I (Mania with/without major depression)
- \*Bipolar 2 (Hypomania with major depression)
- \*Cyclothymic Disorder (Numerous brief episodes of Hypomania and minor depression)
- \*Disthymic Disorder (Prolonged minor depression without hypomania/mania)
- \*Major Depressive Disorder (Major depression without mania)

**Mania:** A distinct period of abnormally and persistently elevated or irritable mood, severe enough to impair functioning and require hospitalization.

**Hypomania:** A distinct period of persistently elevated or irritable mood that is clearly different from the usual non-depressed mood, not severe enough to cause marked impairment in function and does not require hospitalization.

**Depression:** A mood state characterized by a sense of inadequacy, a decrease in activity, pessimism, and sadness. Major depression causes clinically significant distress in the person's level of functioning. Minor depression is distinct from non-depressed mood, but does not affect the person's level of functioning (American Psychiatric Association, 2000).

**Rebound:** The body's reaction to the absence of a drug in the system. For Ritalin, this includes heightened levels of excitability, activity, irritability, inattentiveness, and impulsivity (Bolaños et al., 2003; Kollins, MacDonald, & Rush, 2001; Overtom et al., 2003; Volkow & Insel, 2003).

**Reuptake:** The reabsorption of a neurotransmitter (see Synapse) by a neuron following its transmission across the synapse (Bolaños et al., 2003; Kollins, MacDonald, & Rush, 2001; Overtom et al., 2003; Volkow & Insel, 2003).

**Synapse:** The space between two neurons. A nerve impulse reaches the synapse through the axon (the transmitting end of a nerve cell). The impulse releases a neurotransmitter (chemical substance that either excites the cell to send the impulse on or inhibits the cell and stops the impulse from going any further), which crosses the gap, or synapse, between the cells (Bolaños et al., 2003; Kollins, MacDonald, & Rush, 2001; Overtom et al., 2003; Volkow & Insel, 2003).

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